

Appl. No. 09/633,760
Amdt. dated November 17, 2003
Reply to Office action dated August 15, 2003

Attorney ref. US000180 (236/144)

REMARKS/ARGUMENTS

STATUS OF CLAIMS

Claims 1-16 are pending. Claims 13-16 are new. Claims 1, 7 and 11 are currently amended.

SUPPORT FOR CLAIM CHANGES

Claim 11 was objected to because of informalities. Claims 1, 5 and 7 were rejected under 35 USC §112, second paragraph, as being indefinite in citing a limitation with an insufficient antecedent basis and in using the phrase "such as." Claim 7, with its dependent claims, 8-10, was amended to be dependent upon independent claim 1. New claims 13-16, which mirror claims 7-10, were added to make the subject matter of claims 7-10 dependent upon independent claim 11.

REJECTIONS UNDER 35 USC § 102

CLAIMS 1-4, 6, 11 AND 12

The Examiner rejected claims 1-4, 6, 11 and 12 under 35 USC § 102(b) as being anticipated by Weinshall et al. (*From Ordinal to Euclidean Reconstruction with Partial Scene Calibration*).

With regard to claim 1, the Examiner contends that Weinshall et al. discloses a method of determining a position of an unknown point in space using at least two cameras (page 210, para. 1) aimed such as to have an overlapping field of view (page 209, para. 5). Weinshall et al., in the cited paragraphs, discloses only determining the depth or "height" (Z) relative to a reference plane. Weinshall et al. does not disclose the

Appl. No. 09/633,780
Amdt. dated November 17, 2003
Reply to Office action dated August 15, 2003

Attorney ref: US000180 (236/144)

determining the position of an unknown point in space. This is further highlighted in the specification of the present application, wherein the determination of the depth of an unknown point with respect to the reference plane follows an algorithm from Weinshall et al. is incorporated by reference. *Specification, page 5, lines 11-18*. Thus, as Weinshall et al. does not disclose the determining the position of an unknown point in space, it cannot anticipate claim 1.

Second, the Examiner contends that Weinshall et al. discloses calculating a planar projective transform that maps said images of said at least four points to a reference frame, said reference frame being a projection of said reference plane (Page 209, para. 4). Weinshall et al., in the cited paragraph, discloses projection of scene points onto an input camera image in two stages: (i) the projection of each scene point ... onto the reference plane, and (ii) the re-projection of the reference plane onto the camera image plane. Claim 1 recites a reference plane being common to camera images. (*Page 19, lines 9-10*). It then recites calculating a planar projective transform that maps said images of said at least four points to a reference frame, said reference frame being a projection of said reference plane (referred to as step (2), *infra.*). (*Page 19, lines 9-12*). Thus, in claim 1, the reference frame is a projection of the reference plane, *i.e.*, the camera images plane. Whereas the projections disclosed in Weinshall et al. are projections to the camera image plane, not projections of the camera images plane, as recited in claim 1. Thus, Weinshall et al. does not anticipate this element of claim 1 either.

The applicant notes that anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 221

Appl. No. 09/633,760
Amdt. dated November 17, 2003
Reply to Office action dated August 15, 2003

Attorney ref: US000180 (236/144)

USPQ 481, 485 (Fed. Cir. 1984). The Applicant notes that even to the extent that elements of claim 1 may be recited in Weinshall et al., they are not arranged as in the claim and do not anticipate the method of claim 1, which requires the recited steps be performed in the recited order to practice the invention.

Specifically, claim 1 recites, in order, the following two steps:

- (1) generating in each of said camera an image corresponding to at least four points lying in a reference plane, the reference plane being common to the respective images of the cameras;
- (2) calculating a planar projective transform that maps said images of said at least four points to a reference frame, said reference frame being a projection of said reference plane;

Claim 1 requires (1) "generating in each of said camera an image corresponding to at least four points lying in a reference plane" before (2) "calculating a planar projective transform[.]" This calculating step (2) "maps said images of said at least four points to a reference frame and said reference frame being a projection of said reference plane," with said at least four points and said reference plane being generated in step (1). Thus, step (1) must take place before step (2) to practice the invention of claim 1.

The Examiner contends that Weinshall et al., page 209, para. 2 and 5 anticipates step (1) and that page 209, para. 4 anticipates step (2). To the extent that these disclosures in Weinshall may anticipate the individual steps of claim 1, the disclosures do not anticipate performing these steps in the order recited in claim 1. Weinshall et al., para. 5, corresponding to step (1), comes after Weinshall et al., para. 4, corresponding to step

Appl. No. 09/633,760
Amdt. dated November 17, 2003
Reply to Office action dated August 15, 2003

Attorney ref: US000180 (238/144)

(2). As stated above, to practice claim 1, step (1) must take place before step (2). Thus, as Weinshall et al. does not disclose these steps in this order, it cannot anticipate claim 1.

Claims 2-4 and 6 are dependent upon claim 1 (claims 2, 4 and 6 are directly dependent upon it, claim 3 is dependent upon claim 2). Just as Weinshall et al., for the reasons stated above, does not anticipate claim 1, it cannot anticipate claims 2-4 and 6 either.

Claim 11 is similar to claim 1 in that both recite a method of determining a position of an unknown point in space using at least two cameras aimed to have a substantially overlapping field of view claims and both recite steps (1) and (2) in order. Just as Weinshall et al. does not anticipate these elements in claim 1, as stated above, it cannot anticipate them in claim 11 either. Claim 12 is dependent upon claim 11. Therefore, Weinshall et al. cannot anticipate claim 12 as well.

REJECTIONS UNDER 35 USC § 103

CLAIMS 5, 7, 8 AND 10

The Examiner rejected claims 5, 8 and 10 under 35 USC § 102(b) as being unpatentable over Weinshall et al. as applied to claim 1 above, further in view of Wilson et al. (US 5,386,299). It appears from the text of Office action that the Examiner meant to reject claim 7 on these grounds also.

Regarding claim 5, it is directly dependent upon claim 4, and indirectly dependent upon claim 1. For the reasons stated above, Weinshall et al. does not disclose claim 1's method of determining a position of an unknown point in space using at least two cameras aimed to have a substantially overlapping field of view claims or steps (1) and (2) in order.

Appl. No. 09/633,760
Amdt. dated November 17, 2003
Reply to Office action dated August 15, 2003

Attorney ref: US000180 (236/144)

Nor does Wilson et al. disclose these elements. Thus, claim 5 is patentable over Weinshall et al. in view of Wilson et al.

Claim 7 has been amended to be dependent upon claim 1. Claims 8 and 10 are dependent upon claim 7. As stated above, Weinshall et al. does not disclose numerous elements of claim 1. Nor does Wilson et al. disclose these elements. Thus, claims 7, 8 and 10 are patentable over Weinshall et al. in view of Wilson et al.

CLAIM 9

The Examiner rejected claim 9 under 35 USC § 103(a) as being unpatentable over Weinshall et al. in view of Wilson et al. as applied to claim 7 above, and further in view of Proesmans et al. (US 6,510,244). Claim 9 is dependent upon claim 7, which has been amended to be dependent upon claim 1. As stated above, neither Weinshall et al. nor Wilson et al. disclose all of the elements of claim 7. Nor does Proesmans et al. disclose all of these elements. Thus, claim 9 is patentable over Weinshall et al. in view of Wilson et al, further in view of Proesmans et al.

Appl. No. 09/633,760
Amdt. dated November 17, 2003
Reply to Office action dated August 15, 2003

Attorney ref: US000180 (236/144)

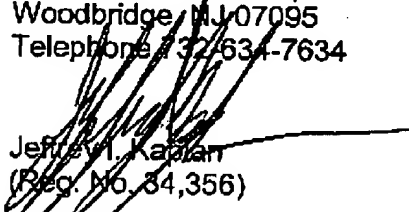
CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that all claims pending are allowable. Therefore, reconsideration and allowance are respectfully requested.

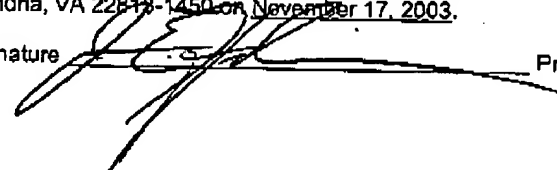
Respectfully submitted,

Kaplan & Gilman, L.L.P.
900 Route 9 North
Woodbridge, NJ 07095
Telephone 732-634-7634

DATED: November 17, 2003


Jeffrey M. Kaplan
(Reg. No. 34,356)

I hereby certify that this paper is being transmitted by facsimile to the Patent and Trademark Office in accordance with § 1.6(d), to TECHNOLOGY CENTER 2600, 703-872-9326, Mail Stop Non-Fee Amendment, Commissioner for Patents, P. O. Box 1450, Alexandria, VA 22813-1450 on November 17, 2003.

Dated: November 17, 2003 Signature Print Name Jason E. Hardiman